generator was nulled using copper **902**. Thereafter, the copper was replaced with brass causing the amplitude to vary from the original nulled position **904** to a new position **906**. Since brass and copper have related properties, the dislocation **904** from the copper nulled position **902** is small. However, when the brass is replaced with aluminum the amplitude **906** varies significantly from the original nulled position **902**. Aluminum and copper have significantly different physical characteristics."

IN THE DRAWINGS

Corrected drawings responsive to the objections of the Examiner are attached.

Specifically, Figure 1 is attached with labeled blocks and deletion of item 565.

Figure 1A is attached with labeled blocks and

IN THE CLAIMS

In response to the objections noted by the Examiner, please amend Claims 1, 2, 4, 10, 11, 18, 22, 23, 30, 32, 33, 34, 41, 42, 43 to read as stated below. Please also delete Claim 17.

1. (AMENDED) A logging tool for measuring electrical resistivity of geologic formations through an electrically conductive and magnetically permeable well or bore hole casing comprising:

(a) a saturation inducer for (i) generating a first magnetic flux, and (ii) engaging the magnetic flux with a portion of the casing without electrical contact between the saturating inducer and the casing, for (iii) creating at least one magnetically saturated portion of the casing extending through the thickness of the casing ;

(b) a transmitter for generating and transmitting an oscillating second magnetic flux through the saturated portion of the casing; and

B9 Cont'd

(c) a receiver for detecting an oscillating magnetic flux transmitted from the exterior of the saturated portion of the casing.

2. (AMENDED) The apparatus defined in claim 1 wherein the transmitter and the receiver are proximate to the saturated portion of the casing.

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4. (AMENDED) The apparatus defined in claim 3 further comprising at least one housing to contain the saturation inducer, the transmitter and the receiver.

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10. (AMENDED) The apparatus defined in claim 1 further comprising at least one means separately located from the saturation inducer, transmitter and receiver for receiving an electrical signal corresponding to the oscillating magnetic flux detected by the receiver and connected to the receiver by means to transmit such electrical signal.

11. (AMENDED) The apparatus defined in claim 10 further comprising an output display for the received electrical signal and the location of the receiver in the axial length of the casing.

17. (DELETED)

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17 ~~18.~~ (AMENDED) The apparatus defined in claim 1 wherein at least one of the transmitters is located proximate to the saturation inducer and at least one receiver is located proximate to another saturation inducer.

B13 Cont'

21 ~~22.~~ (AMENDED) The apparatus defined in claim 1 wherein a plurality of saturation inducers, transmitters and receivers are oriented in different directions radially from the axial length of the casing.

Sub C10

23. (AMENDED) The apparatus defined in claim 1 wherein (i) the saturation inducer engages the interior side of the casing with magnetic flux but does not saturate the casing through to the exterior side, (ii) the oscillating magnetic flux generated and transmitted by the transmitter

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means induces eddy currents within the partially saturated portion of the casing, (iii) receiver detects oscillating magnetic flux generated within electrically conductive media located exterior to the casing by eddy currents induced within the media by the oscillating magnetic flux emitted from the partially saturated casing.

26. (AMENDED) The apparatus defined in claim 23 further comprising means to modify the relative permeability of the partially saturated casing.

29 ~~30~~. (AMENDED) The apparatus defined in claim ~~28~~ 22 wherein the amount of electric power utilized by the saturation inducer can be variably controlled.

31 ~~32~~. (AMENDED) The apparatus defined in claim 1 wherein the saturation inducer and the transmitter utilize the same electrically conductive coil.

32 ~~33~~. (AMENDED) The apparatus defined in claim 1 wherein the saturation inducer utilizes a dc electrical power and the transmitter uses ac electrical power.

33 ~~34~~. (AMENDED) The apparatus defined in claim 1 wherein the saturation inducer comprises a permanent magnet.

40 ~~41~~. (AMENDED) The apparatus defined in claim ~~33~~ 32 wherein the transmitter and receiver are separated by magnetically unsaturated material.

41 ~~42~~. (AMENDED) The apparatus defined in claim ~~38~~ 37 wherein the transmitter is placed upon a material having sufficient mass and magnetic permeability to direct the transmitter flux in a manner to minimize the quantity of transmitter flux reaching the receiver.

42 ~~43~~. (AMENDED) A method for detecting electrically resistive media within a geologic formation by transmitting and receiving magnetic flux